

a.

## **2013 Indian Creek Reservoir Aquatic Vegetation Control Plan**

### **LDWF, Inland Fisheries**

House Bill No. 963 in the regular session of 1964 authorized the Rapides Parish Police Jury to construct a dam and reservoir on Indian Creek within the Bayou Boeuf Watershed. To review HB 963 see attachment # 1.

1. Waterbody type - Impounded stream
2. Age and condition of control structure –Completed in 1972 - Indian Creek Dam is fulfilling its intended purpose as per DOTD inspection dated 2011.

The following maintenance items are noted:

- The gate stem on the irrigation drawdown structure is bent and some of the bolts that hold the guide brackets for the stem have broken-off. The gate stem assembly is to be repaired.
  - Scarping on the upstream slope of the southern embankment near the northern end is to be monitored, and when the crown width is less than 14 feet, repaired. The largest, and northernmost, area of scarping was measured for monitoring purposes. The dimensions of the scarp are as follows: 31-foot long, by 2-foot tall, by approximately 8-foot deep/wide.
  - Concrete spalls around the south training wall handrail post sockets are to be repaired and the handrail is to be installed into the repair socket.
  - The small slide on the downstream slope of the northern embankment, near station 55+00 is to be repaired.
  - Erosion and scarping on the downstream slopes around the spillway are to be repaired.
  - Warning buoys and signs are to be installed in tile approach channel to the spillway.
  - Trees and brush growing in the upstream shore protection along the northern embankment are to be cut.
3. Type of control structure  
The Indian Creek Reservoir Dam consists of two earthen embankments, separated by 2,900 feet of natural ground. There is an 80-foot wide spillway on the south end and the overall total length of the dam is about 7,900 feet. There is a 72-inch diameter drawdown pipe about 400 feet north of the spillway.  
Dam height is 37 feet.  
Structural height is 42 feet.  
Hydraulic height is 37 feet.  
Maximum discharge is 3,680 cubic feet per second.  
Maximum storage is 38,200 acre-feet.  
Normal storage is 25,000 acre-feet.  
Surface area is 2,250 acres.
  4. Drainage area is 24 square miles (see attachment # 2). Spillway crest elevation(MSL)- 86.5 MSL
  5. Surface acres at pool stage – 2,250 Acres
  6. Water level fluctuation – Indian Creek Reservoir has a small watershed. Water fluctuations greater than 2 feet above pool stage are rare.
  7. Average depth – 9 feet –Maximum depth - 25 feet
  8. Watershed ratio – 6.8 : 1
  9. Drawdown potential of structure – The impoundment can be dewatered at least 4 inches per day. Drawdown potential is at least 10.0 feet.
  10. Waterbody Board or Lake Commission – Indian Creek Reservoir is owned by the

Rapides Parish Police Jury (RPPJ). Through interagency agreement with the Louisiana Forestry Commission and the United States Department of Agriculture Soil Conservation Service, RPPJ is responsible for maintenance and operation of the impoundment (see attachment # 3). The Police Jury has established a dedicated drawdown pool to 76.0 MSL if needed to meet agricultural irrigation needs by route of Bayou Boeuf (see attachment # 4).

- a. Primary contact information- Rapides Parish Police Jury  
P.O. Box 792  
Alexandria, LA. 71301
- b. Citizen's Group- Indian Creek Environmental Association  
P.O. Box 725  
Lecompte, LA. 71346  
President – John Carter
- c. Procedure for spillway openings – Spillway opening is on an as needed basis for irrigation. Gate opening is handled by RPPJ or Department of Agriculture personnel. Openings at the request of LDWF for habitat or fisheries management purposes must be approved by RPPJ.

DRAWDOWN HISTORY				
Date Opened	Date Closed	Purpose	Results	Issues
2002		Hydrilla control	Unsuccessful	Extensive rainfall
Sept. 2003	Dec. 2003	Hydrilla control	Successful	Short term benefits
Sept. 2005	Dec. 2005	Hydrilla control	Successful	Short term benefits

What significant stakeholders use the waterbody?

The reservoir was built primarily to provide water for irrigation. Agriculture irrigation is designated as the first priority. The Rapides Parish Police Jury, through interagency agreement with the Soil Conservation Service and Louisiana Forestry Commission, is responsible for the maintenance and operation of the impoundment. The Police Jury has established a dedicated drawdown pool to 76.0 MSL if needed to meet agricultural needs by route of Bayou Boeuf.

Indian Creek Reservoir is a heavily utilized waterbody for recreational activities for pleasure boating, fishing, hunting, skiing and swimming. Indian Creek Recreation Area is located on the shoreline of the reservoir and is owned by the Louisiana Department of Agriculture and Forestry (LDAF). The recreation area is used extensively for camping.

Booker Fowler Fish Hatchery utilizes the reservoir as a source of water for hatchery operation. The hatchery water intake is 6 feet below the pool elevation of 86.5 MSL.

A small number of homes and camps are located on the shoreline around the reservoir.

What are their needs and concerns? What is the history of aquatic vegetation complaints?

Hydrilla was discovered in the reservoir in the late 1990's. By 2002, it could be found out to the 12 foot contour in some locations. Since that time Hydrilla has been a constant problem. It causes problems for anglers and recreational boaters. It causes problems at the Indian Creek recreation area by encroaching upon the beaches at the three designated swimming areas. It also causes problems for boaters wishing to access the camping area from the water. Booker Fowler Fish Hatchery had problems with hydrilla blocking the water intake in 2010 and 2011. Numerous complaints have been received by home and camp owners around the reservoir. The majority of the shallow water areas of the reservoir and a fringe around the entire reservoir is matted with hydrilla.

Have there been any controversial issues?

Since the first priority of the reservoir is providing water for irrigation, drawdowns are always of concern. The reservoir may not refill in a timely manner due to the small watershed (6.8 to 1).

Water levels lower than 6 feet below pool elevation would prohibit Booker Fowler from pumping water needed for fish production and other hatchery goals.

### **Aquatic Vegetation Status:**

AS OF JULY 2012:

Hydrilla is the only significant problem vegetation. Hydrilla has colonized out to the 14 foot contour and approximately 1000 acres are infested. There is a fringe of giant cutgrass along 75 % of the shoreline and approximately 100 acres of American lotus. Salvinia, both common and giant, can be found in the reservoir, but are not causing serious problems. Coverage is less than 100 acres. Alligator weed can be found but does not cause problems. It is sprayed incidentally during applications to control salvinia. Giant salvinia has not become problematic.

Hydrilla is the only significant problem vegetation expected for 2013. Acreage is expected to be close to 1000 acres. Giant salvinia is becoming more problematic with coverage near 300 acres possible. American lotus is expected to be near 100 acres. It occurs in shallow water areas in scattered patches.

### **Limitations:**

- The small watershed and water priorities for irrigation limit the use of drawdowns
- Use of water for irrigation could limit the use of certain herbicides
- Lack of State ownership limits authority

## Past Control Measures -

Year	Acres	Vegetation
2007	7	Alligator Weed
	7	American Lotus
	7	Giant Cutgrass
	7	Water Lily
2008	18	Alligator Weed
	74	American Lotus
	68	Giant Cutgrass
	147	hydrilla
	117	Common Salvinia
	35	Giant Salvinia
	44	Water Lily
2009	20	Alligator Weed
	15	American Lotus
	118	Giant Cutgrass
	32	Common Salvinia
	4	Water Shield
2010	60	Alligator Weed
	70	American Lotus
	30	Giant Cutgrass
	200	hydrilla
	4	Giant Salvinia
2011	5	Alligator Weed
	3	American Lotus
	21	Giant Cutgrass
	70	Giant Salvinia
2012	27	Alligator Weed
	53	American Lotus
	34	Cutgrass
	198	Hydrilla
	359	Giant Salvinia

Herbicides have been applied at the following rates:

**Aquathol Super K (granular):** Used at a rate of 4.5 pounds per acre feet to treat hydrilla early in the spring when water temperatures are cool.

**Glyphosate (Aquamaster, Aquastar, etc.):** Used at a rate of 0.75 gallons per acre to treat alligator weed, water hyacinth, giant and common salvinia during the active growing period.

**Diquat (Reward, Knockout):** Used at a rate of 0.75 gallons per acre to treat alligator weed, water hyacinth, and giant and common salvinia during the slower growing period or winter months.

Surfactant is added at a rate of 1:4 (surfactant: herbicide) for all herbicides.

Indian Creek has had issues with hydrilla since 2000. Initially, drawdowns were tried in 2002, 2003, and 2005 as a control method. However, the drawdowns were not of sufficient

depth to control the hydrilla population. There were several reasons for these limited drawdowns. The RPPJ was concerned that there would not be sufficient water available for agricultural irrigation and LDWF hatchery personnel were concerned about the availability of water to the Booker Fowler Hatchery for fish production. Following the 2005 drawdown Indian Creek did not refill to full capacity for over a year.

Herbicide applications were conducted in 2008 and 2010 for hydrilla control. The treatment areas were approximately 200 acres in size. The areas selected were in the vicinity of the Indian Creek Recreation Area and the area of the lake that is developed with homes and camps. Herbicide applications were successful in reducing the amount of hydrilla in the treated areas. However, benefits were short-lived and hydrilla returned in the treated areas during the second growing season. Small scale herbicide applications have proven to be ineffective for long-term hydrilla control. The use of biannual herbicide applications to control hydrilla in high use areas are labor intensive and cost prohibitive.

Triploid grass carp (TGC) have proven to be effective at controlling submergent vegetation, especially hydrilla. Due to the limited effectiveness of herbicides discussed above and the numerous problems associated with the use of drawdowns, triploid grass carp control is being implemented. Three thousand (3000) TGC were stocked at 5 locations around the lake on May 11, 2012. The fish were stocked at a rate of 3 per vegetated acre and were 8" to 12" in length. Booker Fowler stocked an additional five (5) TGC that were 38" long into the lake on November 15, 2012. Annual vegetation surveys will be conducted each summer (July - August) to determine the success of the TGC in reducing hydrilla growth. Additional TGC stocking may be considered in 3 to 5 years if needed.

Prior to the TGC stocking discussed above, an herbicide application was conducted on April 10, 2012. The treatment areas were approximately 200 acres in size. The areas selected for treatment were in the vicinity of the Indian Creek Recreation Area and the area of the lake that is developed with homes and camps. Herbicide applications were successful in reducing the amount of hydrilla in the treated areas. A total of 830 gallons of Aquathol K were applied at a rate of 4.2 gallons per acre-foot of water. The results of the treatment were positive and the majority of the hydrilla in the treated areas was killed.

Emergent vegetation has never been a serious problem in Indian Creek. There is a fringe of giant cutgrass around most of the shoreline. This is beneficial because it helps reduce shoreline erosion that could occur from the extensive water recreation that occurs on the reservoir. Periodic spraying by LDWF crews has been successful in keeping other emergent vegetation under control.

## **Recommendations:**

Aquatic technicians will report significant changes in the status of aquatic vegetation monthly following days spraying on the reservoir. LDWF spray crews will continue spraying emergent vegetation several days per month with either glyphosate or diquat and an approved surfactant. These herbicides are applied at the rate of 0.75 gallons per acre with the surfactant applied at 0.25 gallons per acre. A diquat/glyphosate mix may be applied to giant salvinia infestations at a rate of 0.75 gal/acre glyphosate, 0.25 gal/acre diquat, 0.25 gal/acre Aqua King Max, and 8 oz. of Thoroughbred. Alligator weed will be controlled with imazapyr (0.5 gal/acre) in undeveloped areas and with Clearcast (0.5 gal/acre) near houses and developed shorelines.

Aquatic vegetation surveys will be conducted in July or August to determine the species

composition and the acreage of aquatic vegetation. This will provide a method to monitor the success of the TGC stocking and determine if additional vegetation control is necessary.

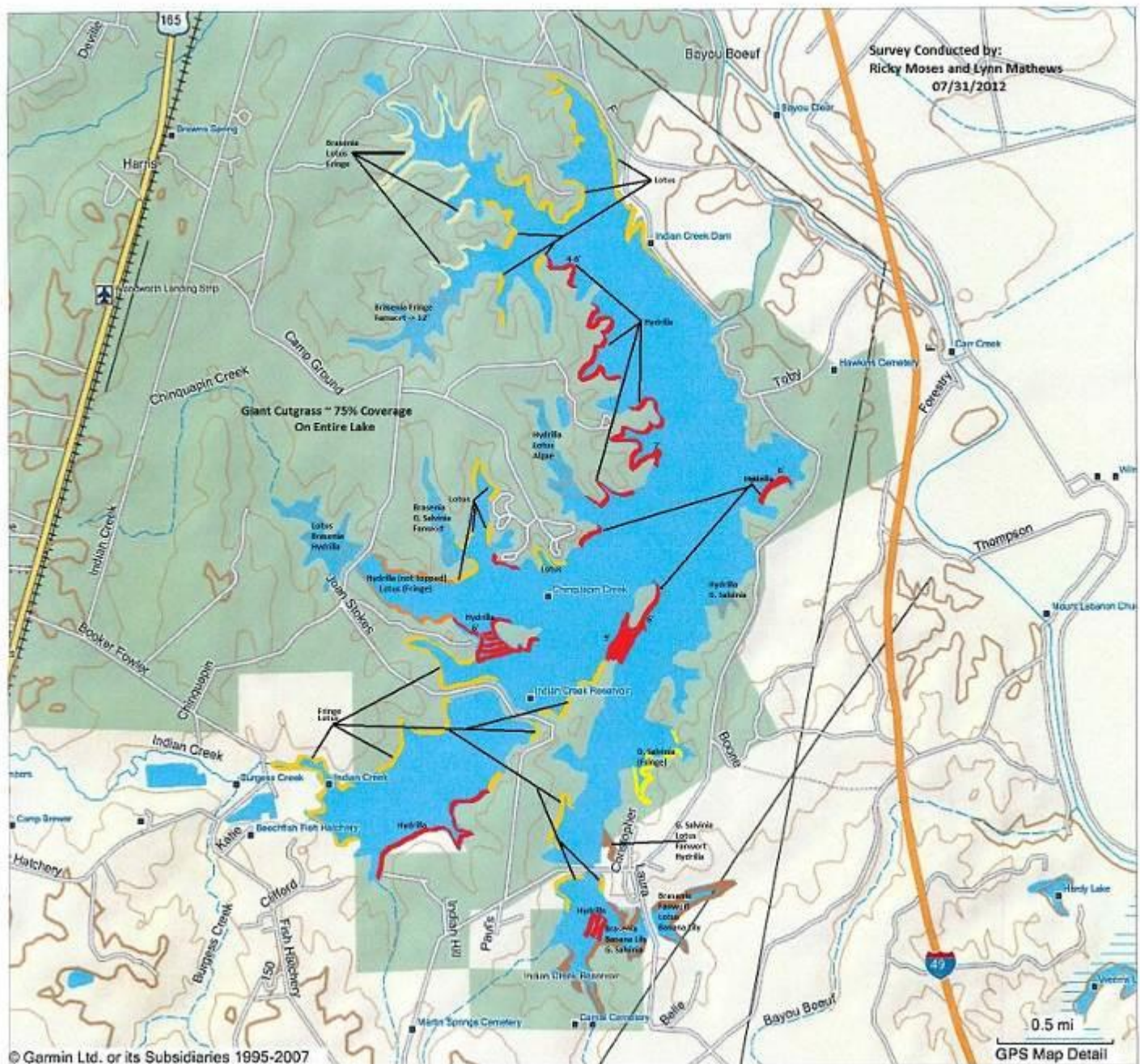
Approved recommendations for 2013 will be presented to the Rapides Parish Police Jury and to the Indian Creek Environmental Association following approval by LDWF Administration.

## Typemap

Historical Type Maps Conducted: 1983, 1984, 1988, 1991, 1992, 1993, 1995, 1997, 1999, 2000, 2006, 2007, 2008, 2009, and 2012

Aquatic Vegetation Type Map Conducted on July 31, 2012

An aquatic vegetation survey was conducted on 31 July 2012. Hydrilla was the only vegetation causing serious problems. Approximately 40 % of the lake contained hydrilla and it was established out to the 14' contour. There is a fringe of cutgrass along 75 % of the shoreline; however it covers less than 100 acres. This is beneficial to help reduce shoreline erosion from wave action. Indian Creek receives extensive usage from recreational water sports. American lotus was found throughout the lake in shallow water areas; acreage was less than 200 acres. Giant salvinia was found scattered on the south end of the lake with coverage less than 100 acres.



## Indian Creek Type Map - August 2009

Indian Creek, located just east of Woodworth, La in Rapides Parish, is a 2,250 acre reservoir which lies mostly inside the Alexander State Forest WMA boundary. It is owned and controlled by the Rapides Parish Police Jury and was created primarily for agricultural needs with wildlife and fisheries habitat enhancement and recreational opportunities for the citizens of the state being secondary. Pool stage is 86.5 MSL and the average depth is 9 feet with a maximum depth of about 25 feet. Water fluctuations in the 1980's and 1990's due to agricultural needs may have caused aquatic vegetation to grow in deeper than normal water. The Police Jury has established a dedicated drawdown pool to 76.0 MSL if needed to meet agricultural needs by route of Bayou Boeuf.

The reservoir was surveyed for the presence of aquatic vegetation on August 18, 2009. The water was very clear.

As in past years, Hydrilla is present in about 80% of the reservoir out to about the 8' contour and in some instances it reaches out to approximately the 12' contour. Below the long field Bridge there was very little Hydrilla. Giant Cutgrass was found encircling 90% of the reservoir. About 40% of this has been treated.

Other aquatic vegetation observed was Alligator Weed, Lotus, Pickerelweed, Fanwort, Panicum and Filamentous Algae. Banana Lily has expanded from a small patch above the H Strange road to about 300 yards of shoreline above and below H Strange Road.



Legislative authorization to construct Indian Creek Reservoir

---

ACT No. 481

House Bill No. 963.

By: Messrs. Munson, Parker and  
Polk.

AN ACT

To authorize the Rapides Parish Police Jury to construct a dam and reservoir on Indian Creek within the Bayou Boeuf Watershed and to inundate any and all State owned land within said reservoir.

Be it enacted by the Legislature of Louisiana:

Section 1. The Police Jury of Rapides Parish, Louisiana, acting alone or in cooperation with the United States of America or any department or agency thereof or with the State of Louisiana or any department or agency thereof, is hereby authorized to construct a dam and reservoir on Indian Creek in Rapides Parish within the Bayou Boeuf Watershed and to inundate permanently or intermittently as it shall see fit any and all lands owned by the State of Louisiana or any agency thereof within said reservoir without the necessity of obtaining any licenses or permits other than the consent herein granted and without the payment of any compensation or damages. Provided, that should any damage be done to the Beechwood Fish Hatchery, owned and operated by the Louisiana Wild Life and Fisheries Commission, by any action under the provisions of this act, said damages shall be made compensable by the Police Jury of Rapides Parish to the Louisiana Wild Life and Fisheries Commission.

Section 2. All laws or parts of laws in conflict herewith are hereby repealed.

Approved by the Governor: July 19, 1964.

A true copy:

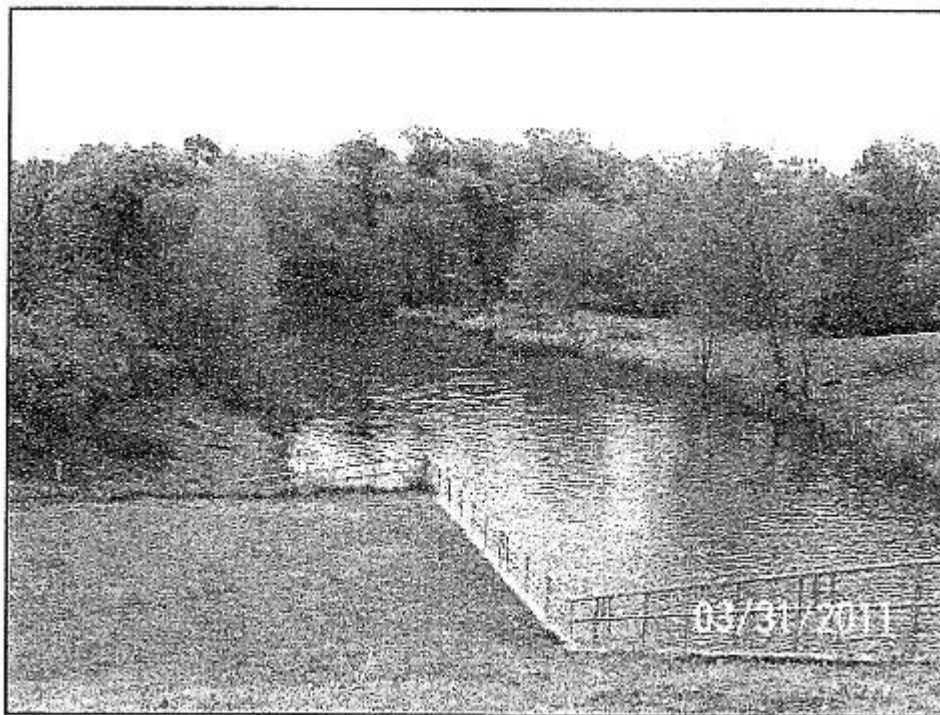
WADE O. MARTIN, JR.  
Secretary of State.

---

Attachment # 2 – Spillway Pictures



**Photo No. 15** View of vegetation in spillway intake channel, looking southerly



**Photo No. 16** View of spillway discharge channel, looking easterly

**Photo No. 20** View of drawdown discharge channel, looking easterly



### Attachment # 3 – Different Government Agencies Responsibilities

The Rapides Parish Police Jury will maintain all fills constructed on the State Forest road system during the construction of the said reservoir.

The Rapides Parish Police Jury, its agents and employees shall have full access to maintain the reservoir and control structure.

The Louisiana Forestry Commission shall operate and maintain and manage the Indian Creek Recreational Area and shall have the right and authority to assess and collect fees for the use of the recreational area which funds so collected shall be used exclusively for the maintenance and operation of the Indian Creek Reservoir and Recreational Area.

It is agreed by and between the parties hereto that in order to insure the effective operation of the reservoir and recreational area, there shall be created the Indian Creek Reservoir and Recreational Area Advisory Committee, which shall serve the parties in an advisory capacity. The said Advisory Committee shall be composed of eight (8) members, two (2) representatives or members from each of the following four (4) bodies:

Page 2.

1. Rapides Parish Police Jury
2. United States Soil Conservation Service
3. Louisiana Forestry Commission
4. Louisiana Wild Life & Fisheries Commission

The Chairman of the Watershed Committee of the Rapides Parish Police Jury shall serve as Chairman of the Indian Creek Reservoir and Recreational Area Advisory Committee.

THUS DONE AND SIGNED in multiple originals on the day first above written.

RAPIDES PARISH POLICE JURY

BY:

LEVERNE PERRY, President

LOUISIANA FORESTRY COMMISSION

BY:

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

BY:

Attachment # 4 - Cotile, Kincaid and Indian Creek Reservoirs Policy and Procedure for Water Level Management

REGULAR SESSION

July 9, 1981

On motion by Mr. Thomas Parnell, seconded by Mr. Edgar Hathorn, to accept the proposed Cotile, Kincaid and Indian Creek Reservoirs Policy and Procedure for Water Level Management as follows and it be laid over for 30 days for public review:

COTILE, KINCAID AND INDIAN CREEK RESERVOIRS  
POLICY AND PROCEDURE FOR WATER LEVEL MANAGEMENT

STATEMENT OF POLICY

The Rapides Parish Police Jury, through interagency agreement with the Soil Conservation Service for construction of Cotile, Kincaid and Indian Creek Reservoirs, is responsible for the maintenance and operation of these facilities. By virtue of the responsibility for the surface area of the lakes, the Police Jury is responsible for water levels and other incidental measures deemed necessary for normal and safe operation or enhancement of these reservoirs.

The dedicated irrigation pools are as follows:

<u>Reservoir</u>	<u>Drawdown to:</u>
Kincaid	82.3 feet MSL
Indian Creek	76.0 feet MSL
Cotile	92.5 feet MSL

Through said agreement and in the interest of maintaining a healthy farm community, and in recognition of the multi-use characteristics of the three reservoirs, the policy of the Rapides Parish Police Jury shall be to attempt to balance various water need and use pressures to maximize benefits to the general community users.

The Police Jury will attempt to maintain flows from the three reservoirs sufficient to accommodate irrigation needs of that portion of the farm community within Rapides Parish which utilizes irrigation waters from the reservoirs. However, it will further be the policy of the Rapides Parish Police Jury to restrict flows from reservoir facilities where recharge conditions dictate conservation of water resources for potential later use.

Recognizing that these reservoirs are multi-use facilities, the Police Jury may additionally adopt such rules and regulations which are not inconsistent with the foregoing, as deemed necessary for the normal, safe and prudent utilization of these facilities for recreational or other purposes.

2012 updated

4/10/2012- Aquathol K was used to treat hydrilla. Two-hundred acres were treated. The shoreline, coves and swimming areas around the I.C. recreational area and the homes and camps in the Martin Springs area were treated. A total of 830 gallons of herbicide was applied at a rate of 4.2 gallons per acre ft. of water. The results were slower than expected however aquatic spray tech 4 Kevin Cole reported the majority of the hydrilla was dead/or gone from the treated areas.

5/11/12 – Indian Creek Res. – 3,000 8” fish – 1000 were stocked at main ramp, 500 were stocked at Chinquapin Rd Ramp, 500 were stocked at Rec Area Rd Ramp (near burned out bridge), 500 were stocked at Martin Springs Rd. Ramp, and 500 were stocked at the private ramp on Laura Ln./ mixed sexes/ mixed weights/ mixed scale colors/1 mortality at Rec Area Ramp

11/15/2012 – Booker Fowler placed 5- TGC 38” long into Indian Creek at the Chinquapin Ramp.